

A METHOD OF DETERMINING A START OF A TRANSMITTED FRAME IN A
FRAME-BASED COMMUNICATIONS NETWORK

5 ABSTRACT OF THE DISCLOSURE

A method of determining a start of a transmitted frame at a receiver on a frame-based communications network. A preamble format for the transmitted frame is provided wherein a plurality of identical copies of a preamble symbol sequence are transmitted sequentially. A received transmitted frame is filtered using filter coefficients matched to the preamble symbol sequence to provide a correlation sequence. A squared-magnitude of the correlation sequence is computed. The squared-magnitude of the correlation sequence is low-pass filtered to provide a low-pass filtered correlation signal low-pass filtered signal. The low-pass filtered correlation signal is delayed to provide a delayed low-pass filtered correlation signal. The delayed low-pass filtered correlation signal is multiplied by a first fixed predetermined threshold to provide a multiplied correlation signal. The multiplied correlation signal is compared with the low-pass filtered correlation signal to provide a correlation difference indicator. Energy of the received transmitted frame is detected and the energy is low-pass filtered to provide a low-pass filtered energy signal comparing detected energy to a fixed energy threshold to provide a threshold compared energy signal. The low-pass filtered energy signal is multiplied by a second fixed predetermined threshold to provide a multiplied energy signal. The threshold compared low-pass filtered correlation signal is compared with the threshold compared multiplied energy signal to provide a correlation peak indicator. A logical-AND of the correlation difference indicator and the correlation peak indicator is formed to determine a match/no match comparison indicative of the start of a transmitted frame.

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